Theory and Simulation of Relativistic Jet Formation

D. L. Meier

JPL/Caltech

I will review recent progress in the theory of relativistic jet production. The presently-favored mechanism is an electrodynamic one, in which the charged plasma is accelerated by electric fields that are generated by a rotating magnetic field. The most pressing issues of current interest are understanding what factors control the jet power and its speed. These will have a direct bearing on understanding the origins of radio and blazar active in active galactic nuclei and on the fundamental difference between radio loud and radio quiet objects. Clues to the answers to these questions may lie in related {\em galactic} sources --- the microquasars in close binary stellar systems --- and in their progenitors, the supernovae and gamma-ray bursts.

This research was carried out at the Jet Propulsion Laboratory, California Institute of Technology, under contract to the National Aeronautics and Space Administration.